

What is claimed is:

1. A magnetic recording/reproducing apparatus, comprising:  
a magnetoresistive head including a spin-valve film as a magnetic  
5 sensor element for detecting magnetic signals, said spin-valve film having  
a structure in which an anti-ferromagnetic layer, a pinned layer in which  
the direction of magnetization is pinned in a predetermined direction by  
an exchange-coupling magnetic field at work between itself and said  
anti-ferromagnetic layer, a free layer in which the direction of  
10 magnetization changes in accordance with an external magnetic field, and  
a non-magnetic layer for magnetically isolating said pinned layer and said  
free layer are layered, wherein  
magnetic signals are detected from a magnetic recording medium,  
which includes a tape-shaped non-magnetic substrate and a metal  
15 magnetic thin film formed thereon, while in sliding contact,  
said spin-valve film has a corrosion potential relative to a standard  
hydrogen electrode of +0.4 [V vs. SHE] or greater when immersed in a  
NaCl solution of a concentration of 0.1 mol/L,  
a product  $M_r \cdot t$  of residual magnetization  $M_r$  and thickness  $t$  of  
20 said metal magnetic thin film is 4 mA to 20 mA, and  
said residual magnetization  $M_r$  is 160 kA/m to 400 kA/m.
2. The magnetic recording/reproducing apparatus according to claim  
1, wherein with respect to said non-magnetic layer of said spin-valve film,  
25 the corrosion potential relative to a standard hydrogen electrode  
measured while immersed in a NaCl solution of a concentration of 0.1  
mol/L is +0.4 [V vs. SHE] or greater.
3. The magnetic recording/reproducing apparatus according to claim  
30 1, wherein  
said non-magnetic layer comprises one of an Au alloy or a Cu alloy,

and

said pinned layer and said free layer comprise one of NiFe and CoNiFe, and assuming the composition ratio of Co:Ni:Fe is b:c:d (where b, c and d represent atomic percentages), respectively, the composition  
5 ranges thereof are  $0 \leq b \leq 75$ ,  $15 \leq c \leq 95$  and  $5 \leq d \leq 40$  (where  $b + c + d = 100$  atomic %).

4. The magnetic recording/reproducing apparatus according to claim 1, wherein said magnetoresistive head is mounted on a rotary drum and  
10 detects magnetic signals by a helical scan method while in contact with a tape-shaped magnetic recording medium.

5. The magnetic recording reproducing apparatus according to claim 1, wherein said metal magnetic thin film of said magnetic recording  
15 medium has a surface resistivity of  $1 \times 10^3 \Omega/\text{sq.}$  to  $1 \times 10^9 \Omega/\text{sq.}$

6. The magnetic recording/reproducing apparatus according to claim 5, wherein the surface resistivity of said metal magnetic thin film is  $1 \times 10^4 \Omega/\text{sq.}$  to  $1 \times 10^9 \Omega/\text{sq.}$

20 7. The magnetic recording/reproducing apparatus according to claim 5, wherein said magnetoresistive head is mounted on a rotary drum and detects magnetic signals by a helical scan method while in contact with a tape-shaped magnetic recording medium.

25 8. The magnetic recording/reproducing apparatus according to claim 1, wherein a surface of said metal magnetic thin film of said magnetic recording medium has an arithmetic mean roughness Ra of 1 nm to 5 nm and a ten-point mean roughness Rz of 20 nm to 200 nm.

30 9. The magnetic recording/reproducing apparatus according to claim

8, wherein said magnetoresistive head is mounted on a rotary drum and detects magnetic signals by a helical scan method while in contact with a tape-shaped magnetic recording medium.